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ABSTRACT

In regional, rural, and remote areas of Australia, geographic and professional isolation take their toll on professionals, particularly in the first 5 years of practice. The attraction and retention of human service professionals and paraprofessionals in regional Australia is a significant problem affecting the sustainability and social cohesion of rural communities. This paper reviews the literature on induction of professionals in isolated situations, particularly in the health and education fields, and proposes methods of support based on the Internet. Web sites can be designed to offer rural professionals a range of supportive elements, such as a discussion board to link isolated professionals with peers and mentors, contact information for professional and community organizations and help groups, videos and pictures of experts demonstrating methods or procedures, links to online publications and databases, links to conference Web sites, documents relevant to the profession, critical resources to support daily activities, and frequently-asked questions. An example of such a site that would be appropriate for neophyte teachers is entitled "Mathematics Education on the Web." The site provides lesson plans, communication capabilities, exemplary teaching videos, and links to useful resources. (Contains 21 references.) (SV)

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Web-based Strategies for Professional Induction in Rural, Regional and Remote Areas

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Web-based strategies for professional induction in rural, regional and remote areas

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Abstract

Geographic and professional isolation take their toll amongst professionals, particularly within the first five years of practice in regional, rural and remote areas of Australia. The attraction and retention of human service professionals and para-professionals in regional Australia is a significant problem affecting the sustainability and social cohesion of these communities. This paper reviews the literature on induction of professionals in isolated situations, particularly in the health and education areas, and proposes methods of support based on the use of the Internet. Samples of website designs are provided, together with an example of a site that would be appropriate for neophyte teachers. The site, entitled *Mathematics Education on the Web*, provides communication technologies for discussion, resources and exemplary teaching videos, and provides an example of how the Internet can be used to support isolated teachers in the critical first few years of teaching.

The service professions in rural and regional Australia

Induction into the professions, when conducted in rural and remote areas in Australia presents many problems for recent graduates. Geographic and professional isolation take their toll amongst professionals, particularly within the first five years of practice. This situation holds across all the service professions: teachers, doctors, dentists, nurses are equally at greatest risk of leaving their profession in those first critical years in country placements.

The attraction and retention of human service professionals and para-professionals in rural and regional Australia is a significant problem affecting the sustainability and social cohesion of these communities (House of Representatives Standing Committee on Primary Industries and Regional Services, 2000; Regional Australia Summit Steering Committee, 2000).

There is a growing national concern that reduced outcomes in health, education, employment and technology in regional Australia have the potential to seriously undermine national cohesion (House of Representatives Standing Committee on Primary Industries and Regional Services, 2000; Regional Australia Summit Steering Committee, 2000). Recommendations from these committees have focussed on specific strategies for establishing improved social infrastructures and equity of services to enable improved health and education outcomes, better employment pathways and improved telecommunications. Attracting and retaining professional and para-professional staff in regional areas is seen as a significant factor in improving these outcomes (Bradley & McClean, 2000).

In the health area, both nationally and internationally, there is a recognised shortage of medical practitioners, nurses, dentists and allied health professionals in rural areas. The National Rural Health Association (1998) in the United States reports that rural communities continue to experience health professional shortages and lower standards of outcomes which include higher infant mortality, fewer hospital beds, and less health insurance. They argue that although much effort has been expended in placement of physicians in these rural areas, relatively little has been done to enhance their retention.

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Similarly, in the area of education, there is a growing difficulty nationally and internationally in attracting and retaining school teachers and allied services. Worldwide, there is a high turnover rate of teachers in rural schools, with high mobility a characteristic feature of these teachers' employment patterns (Murphy & Angelski, 1996). Schools in regional and rural Australia experience a higher turnover rate of staff than metropolitan schools (Tomlinson, 1994). A highly mobile staff of inexperienced teachers results in schools lacking stability and program continuity with clear disadvantages for students (Human Rights and Equal Opportunity Commission, 2000). Specifically, the Commission identified the reduced quality of educational outcomes achieved by country students in respect of literacy, numeracy, retention and participation in higher education.

The reasons why rural and remote schools are difficult to staff include a number of disincentives such as travel costs, higher costs of living, and limited accommodation. New teachers are often burdened with the difficult classes that experienced teachers avoid (Moskowitz & Stephens, 1997), little or no mentoring is provided (Moir & Gless, 2001), and many suffer from a lack of administrative and classroom support (Westing & Whitten, 1996). These problems are compounded by the day-to-day demands of a profession that can be highly stressful—up to one third of teachers regard teaching as a highly stressful occupation (c.f. Chan, 1998). Another disincentive appears to be lack of access to professional development, in particular, decreased contact and support from fellow professionals (Collins, 1999; Foster and Harvey, 1998).

Professional induction solutions

A number of reports and articles have suggested frameworks for examining the problems of professional induction in rural and regional Australia, and there is a wealth of literature on the essential elements that would work towards more effective induction programs.

In the health professions, strategies have been developed to attract specialists to rural areas including specialist rural training posts, training programs and locum programs (e.g., Bradley & McClean, 2000; Chandler, 2001). However, it is recognised that more can be done to retain these professionals, particularly with the use of new technologies, the benefits of which include training and professional development. The House of Representatives Standing Committee on Primary Industries and Regional Services, 2000 was advised that 'well-designed, supported and integrated education and training, including postgraduate and continuing education, would help retain doctors for longer periods of time in regional areas' (p. 336). The National Rural Health Association (1998) argues that professional isolation is often cited as a reason to leave a rural area and, as in Australia, the association suggest that innovations in information technologies such as the internet and tele-informatics can become resources for diminishing this isolation (e.g., Geissinger & Lloyd, 2001). An example in practice is Tasmania's state wide telehealth network, which provides access to healthcare facilities linked to urban hospitals and community healthcare centres.

In education, the Commonwealth Government and State Governments have introduced a number of incentives to attract practising teachers to work in rural and regional Australia. These include preferential treatment for transfers; additional annual leave; monetary allowances, repaying HECS liabilities and subsidised housing (Human Rights and Equal Opportunity Commission, 2000a). Other approaches have been aimed specifically at attracting preservice teachers to rural areas, such as recruiting trainee professionals from regional areas; providing practicum placements in regional areas, and offering preservice modules that provide information about teaching in rural and remote areas (Human Rights and Equal Opportunity Commission, 2000).

While these are all important initiatives designed to attract professionals to rural and remote regions, not enough research attention is being given to determining effective ways to retain them (Collins, 1999).

In a strategy that parallels that proposed for retaining health professionals, the Northern Territory Government in its submission to the House of Representatives Standing Committee on Primary Industries and Regional Services (2000) recommended the innovative use of information technologies, such as the Internet, in reducing professional isolation.

A web-based solution to professional isolation

There are at least four significant affordances of the Internet that could be helpful for professional induction in rural and remote areas:

1. *Communication technologies:* Professionals can use communication technologies such as chat facilities and discussion boards to keep in touch with other neophyte professionals from their university courses, as well as lecturers and experts. The facilitation of these supporting communities would help to remove the sense of isolation for many professionals.

2. *Access to the World Wide Web*: Professionals can access the myriad of resources available through the World Wide Web, where significant authorised sites exist in all professional areas (in particular in education and health).

3. *Video and multimedia capabilities:* For professional development, video clips would allow professionals to receive real time demonstrations as well as accessing professional advice and counselling.

4. *Document delivery*: Internet access for professionals in remote areas would enable the electronic delivery of relevant material, documents and resources.

Can the professional isolation experienced by rural and remote professionals be ameliorated by communication technologies and supporting resources?

While some authors caution that the Internet is not yet widely available in rural and regional areas (e.g., Geissinger & Lloyd, 2001), there is evidence that the uptake of the internet is growing at a rate far exceeding other technologies such as television, the personal computer and radio (Economist, 1998). An estimate of the number of Internet users online in the year 2000 by an Internet survey company was 359.8 million people (NUA Internet Surveys, 2000) and this figure is growing daily. Many Government departments are ensuring that their rural and remote employees have access to the Internet, for example, the Education Department in Western Australia has implemented a policy that all schools throughout the state should have reliable access to the Internet (Education Department of Western Australia, 1999).

This paper proposes that many of the inadequacies of current approaches to professional induction might be improved by targeted use of the Internet to support professional groups in geographically and professionally isolated placements. Dedicated websites incorporating communication elements, recent information, contact information, and relevant and recent professional resources may go some way to reducing professional fallout in regional and remote areas of Australia. By providing both reflective and just-in-time support, and providing important communication links to mentors and other neophytes, the Internet may be able to provide a valuable role in the retention of these professional in isolated areas.

Using the World Wide Web to facilitate professional induction

In developing a website to support professionals, a range of internet-based resources and communication technologies can be employed to provide support. Such sites can be designed to suit individual professional groups and can include elements such as:

1. *A discussion board* to link isolated professionals to peers and mentors, so that issues of importance can be discussed, and advice can be obtained from others who may have resolved a similar problem.
2. *A list of contacts* of professional and community organisations and help groups who can assist the professional practitioner or their students, patients or clients.
3. *Videos and pictures of experts* demonstrating processes and procedures such as classroom teaching strategies, and medical procedures.
4. *Links to online journals, newsletters and databases* of relevance to the professional group
5. *Links to other online resources* that might be of assistance to the profession such as authorised websites of related professional organisations.
6. *Links to conference websites* for details of professional conferences.
7. *Documents and papers* relevant to the profession, such as policy documents, guidelines, professional ethics, codes of conduct, agreements, and Government reports.
8. *Critical resources* that support the day-to-day activities of the practitioner such as lesson plans, and information on procedures and current practice.
9. *Frequently-asked-questions* where common problems and possible solutions are posted (these frequently build up over time and are often taken from the discussion board).

In Figure 1, a simple graphical interface shows how users of such a website would access these kinds of resources.

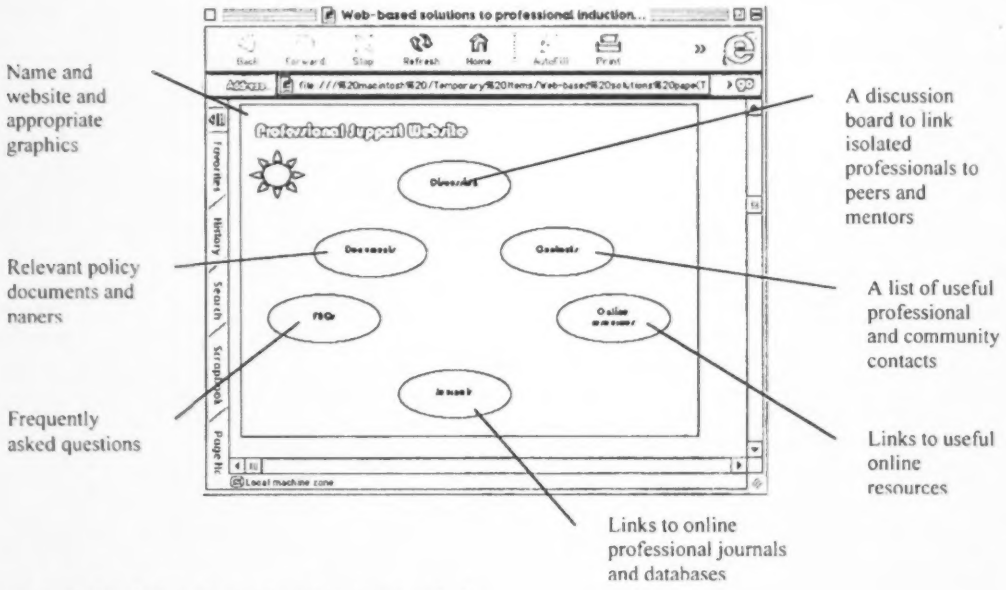
Name and website and appropriate graphics
Relevant policy documents and papers
Frequently asked questions
A discussion board to link isolated professionals to peers and mentors
A list of useful professional and community contacts
Links to useful online resources
Links to online professional journals and databases

Figure 1: A simple interface of professional website

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A button-based interface such as this can be both simple and effective (even a simple list of hyper-linked headings could be effective), but many individuals and organisations favour a more 'ecological' or metaphor-based approach, where access to the resources on the site is made by clicking an object that has some relevance to what it represents. For example, Figure 2 shows a very generic type of office, where each resource is accessed by clicking on an object in the office. For example, clicking on the journals on the bookcase gives access to a list of online journals with direct links to the site, or clicking on the television allows professionals to view video clips of demonstrations and interviews. An interface such as shown in Figure 2 has the advantage of providing a wide range of options in terms of content behind each item, for example, any appropriate documents could be accessed through the drawers on the desk.

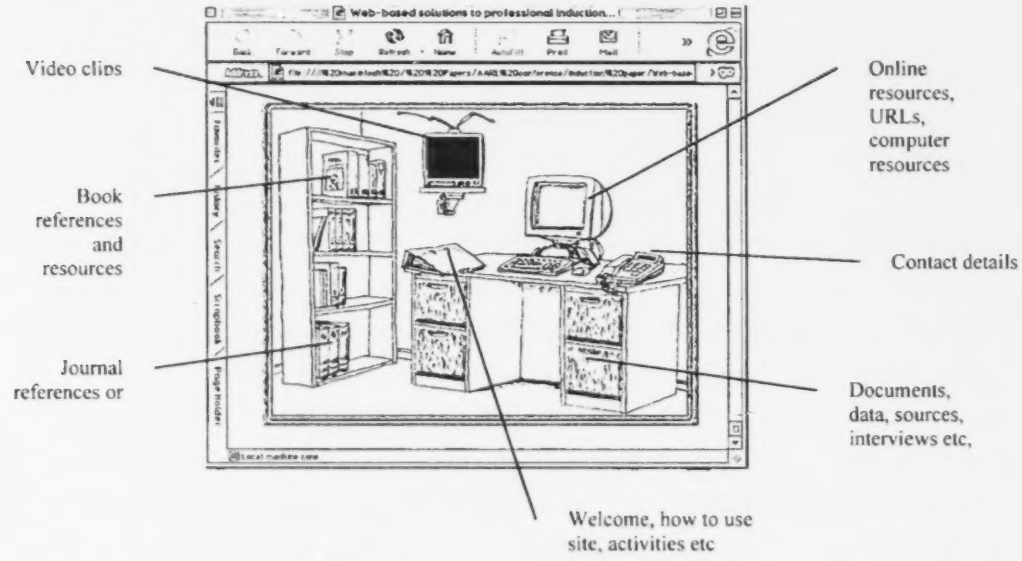
Video clips
Book references and resources
Journal references or
Online resources, URLs, computer resources
Contact details
Documents, data, sources, interviews etc,
Welcome, how to use site, activities etc

Figure 2: A metaphor-based interface of professional website

The office in Figure 2 could easily be substituted with a classroom, surgery or any other workplace where the tools and resources of the profession could appropriately be used as objects representing a range of resources and supports.

Such an approach has been used in the development of a website designed to support preservice teachers on professional practice in schools, but is now being adapted to support neophyte teachers in regional and remote areas of Western Australia. The website entitled *Mathematics Education on the Web (MEOW)* provides support for teachers of mathematics (K-12).

MEOW website to support neophyte teachers

Teachers in Western Australia frequently face periods in rural, regional and remote schools prior to securing tenure in the state education system. The difficulties faced by many of these (often young) first year out teachers is well described in this quotation from a teacher assigned to a remote outback school:

> I was prepared for the worst. So when I did fly over I looked out and all I could see was just the mud flats that [people] had described. I got off the plane and it was hot and it was just red pindan, just red dirt, and you could see for miles, and the Boab trees. I suppose it was very rugged looking as well. And I got here and I just thought, 'oh this is awful. I didn't like it. There weren't any beaches ... and

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there were signs everywhere that said 'Beware of the crocodiles'. (Interview with Louise)

As well as the obvious problems of culture shock and geographical isolation felt by this teacher, the range of problems extends to the more subtle daily questioning of their own abilities in the classroom, as described by Cady, Distad, and Germundsen (1998):

> The unspoken culture of instruction ... has forced a long line of teachers to face, totally alone, a swarm of perplexing classroom episodes and incidents. ... When incidents are unresolved, they persist in the minds of the educator. During such experiences, teachers question their pedagogic abilities and efficacy. If honest, all teachers would admit that they have had such episodes. These unsettling attempts might involve an unruly student, an intimidating parent, or systemic challenges. The catalysts that confront professional confidence and efficacy are endless. For years, neither time nor the work culture promoted the group processing of such teaching events. (p. 459)

For teachers in single teacher schools, and those who find themselves as the single discipline representative in a secondary school, there may never be group processing of problematic episodes. Yet it is the consistent and routine pattern of teacher interaction that characterises successful induction (Moskowitz & Stephens, 1997). A web-based resource such as MEOW could be used to productively keep cohort groups in touch with each other after they leave their teacher training institutions. These new teachers can continue to communicate their problems and successes to each other through discussion boards. They can access lesson plans, samples of teaching methods and activities, links to information sources, and online and downloadable teaching materials and view videos of exemplary teaching through the website.

Figure 3 shows the site interface of the MEOW website that reflects the forms of information contained, and provides an intuitive organisational storage and retrieval structure. The interface resembles a teacher's desk (well-equipped) incorporating metaphors to access the elements of the site.

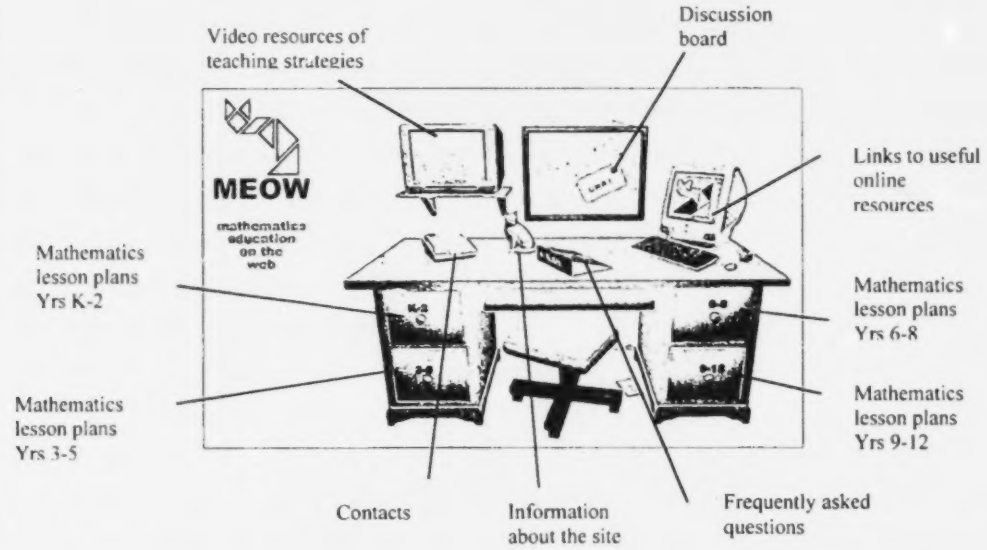

Figure 3: The interface of the MEOW web resource

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Clicking on the elements in the interface gives access to the following features:

1. *Lesson plans:* Clicking on the drawers of the desk gives access to a range of lesson activities in each of the categories: pre K-2; 3-5; 6-8; 9-12 (and this grows dynamically as new lessons are added). The activities reflect the directions advocated in such documents as the *National Statement on Mathematics for Australian Schools* (AEC, 1991) and the National Council of Teachers of Mathematics *Curriculum and Evaluation Standards* (NCTM, 1989).

2. *Expert performances:* Teachers can view short video clips of over 50 teaching and assessment strategies performed by mathematics teachers in real classrooms by clicking on the television on the desk. For example, if a teacher wishes to use role play or peer tutoring, he or she can observe the activity being demonstrated in a classroom within a mathematical context.

3. *Discussion board:* Teachers can access the discussion board when they click on the notice board above the desk in Figure 3. The communication capability of the site enables them to cross-post messages about their school or classes, request information or suggestions on how to approach a particular problem, or contribute ideas and strategies that they have tried successfully.

4. *Useful links:* Clicking on the computer screen on the desk gives teachers access to a myriad of useful mathematics-related sites, annotated by contributors. For example, links exist to lesson plan sites with numerous resources, and also to specific sites, such as one that allows students to print graph paper. Teachers can also add any valuable sites that they have found, together with a short description of why they find the site interesting.

5. *Frequently asked questions:* Clicking on the file on the desk gives teachers access to frequently asked questions which will be assembled from the discussions on the discussion board.

At present, the MEOW website is used by preservice teachers, but it has the capacity to be used by cohort groups beyond their teacher-training years, and extended to provide support in those first few critical years as beginning teachers. A proposed study will follow students from professional practice in schools (where MEOW is currently used) through their first and second years, to evaluate its usefulness and effectiveness in providing induction support.

Conclusion

In the absence of physical proximity and face-to-face mentoring, the resource described here uses the strengths and advantages of the technology to connect teachers to each other in a 'next-best' manner. The interface is intuitive and user friendly, and one could imagine teachers settling down in their virtual office as they might in the staff room, to talk about their successes and problems, to suggest solutions, to exchange stories, and to share resources. It could be a space of shared learning where novices, more experienced teachers and experts come together to share their ideas and experiences in supportive and constructive ways. If the Internet allows this kind of seamless community interaction across physical and geographical boundaries, then the technology will go some way towards solving the persistent problems of the isolated teacher.

In the human services there are significant benefits to be gained for rural communities if successful strategies can be found for retaining staff. Professional isolation is seen as one of the major reasons why professionals and para-professionals are not attracted to,

and do not remain, in rural communities with the consequential effects on reduced outcomes. The Internet can be used as an innovative strategy to support and assist staff in reducing professional isolation, and can usefully serve to create a very real community.

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